

Appl. No. 10/661,652

Reply to Office action of March 30, 2006

Docket. No.: 022.0008 (1630)

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application.

1. (cancelled).
2. (previously amended) The portable/handheld device of claim 41, wherein said width is greater than about one percent (1%) of said free-space wavelength of the directional antenna array.
3. (previously amended) The portable/handheld device of claim 41, wherein said width is greater than about two percent (2%) of said free-space wavelength of the directional antenna array.
4. (previously amended) The portable/handheld device of claim 41, wherein said width is greater than about four percent (4%) of said free-space wavelength of the directional antenna array.
5. (previously amended) The portable/handheld device of claim 41, further comprising a second parasitic element that is separated from said driven element, wherein said at least one of said first parasitic element, said driven element and said second parasitic element has said width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array.
6. (previously amended) The portable/handheld device of claim 41, further comprising a plurality of parasitic elements in addition to said first parasitic element and said second parasitic element.
7. (previously amended) The portable/handheld device of claim 5, wherein said first parasitic element and said second parasitic element are at least substantially in-plane elements.

Appl. No. 10/661,652

Reply to Office action of Nov. 9, 2005

Docket. No.: 022.0008 (1630)

8. (previously amended) The portable/handheld device of claim 41, wherein said first parasitic element is a reflector element.

9. (previously amended) The portable/handheld device of claim 5, wherein said second parasitic element is a director element.

10. (previously amended) The directional antenna array of claim 5, wherein said driven element, said first parasitic element and said second parasitic element are formed of a monolithic material.

11. (previously amended) The directional antenna array of claim 10, wherein said monolithic material has a resistivity that is greater than about  $0.2 \times 10^{-6}$  ohms-meter.

12. (previously amended) The directional antenna array of claim 11, wherein said monolithic material is spring steel.

13. (previously amended) The directional antenna array of claim 5, further comprising a plurality of apertures in said driven element, said first parasitic element and said second parasitic element.

14. (previously amended) The portable/handheld device directional antenna array of claim 41, further comprising a material covering at least a portion of said driven element and said first parasitic element.

15. (previously amended) The portable/handheld device of claim 14, wherein said material covering at least said portion of said driven element and said first parasitic element is an elastomer.

16. (cancelled).

17. (previously amended) A directional antenna array comprising:

a driven element;

Appl. No. 10/661,652

Reply to Office action of Nov. 9, 2005

Docket. No.: 022.0008 (1630)

a first parasitic element spaced apart from said driven element, wherein at least one of said first parasitic element and said driven element have a width that is greater than about one-half a percent (0.5%) of a free-space wavelength of the directional antenna array; and

a balun structure, wherein said balun structure comprises:

a dipole structure;

a first feed point extending from said dipole structure, and

a second feed point extending from said first parasitic element.

18. (original) The directional antenna array of claim 17, wherein said dipole structure is off a center line of the directional antenna array.

19. (original) The directional antenna array of claim 17, wherein said dipole structure is a one-half folded dipole.

20. (original) The directional antenna array of claim 17, wherein said dipole structure is a tapered structure.

Appl. No. 10/661,652

Reply to Office action of Nov. 9, 2005

Docket. No.: 022.0008 (1630)

21. (previously amended) A directional antenna array, comprising:

a first parasitic element;

a driven element spaced apart from said first parasitic element; and

a balun structure configured to couple said driven element to at least one of an electromagnetic energy source and an electromagnetic sink, said balun structure comprising:

a dipole structure;

a first feed point extending from said dipole structure, and

a second feed point extending from said first parasitic element.

22. (original) The directional antenna array of claim 21, wherein said dipole structure is off a center line of the directional antenna array.

23. (original) The directional antenna array of claim 21, wherein said dipole structure is a one-half folded dipole.

24. (original) The directional antenna array of claim 21, wherein said dipole structure is a tapered structure.

25. (original) The directional antenna array of claim 21, wherein said dipole structure further comprises a first width of the driven element and a second width of the driven element.

26. (original) The directional antenna array of claim 21, wherein at least one of said first parasitic element and said driven element have a width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array.

Appl. No. 10/661,652

Reply to Office action of Nov. 9, 2005

Docket. No.: 022.0008 (1630)

27. (original) The directional antenna array of claim 21, wherein said width is greater than about one percent (1%) of said free-space wavelength of the directional antenna array.

28. (original) The directional antenna array of claim 21, wherein said width is greater than about two percent (2%) of said free-space wavelength of the directional antenna array.

29. (original) The directional antenna array of claim 21, wherein said width is greater than about four percent (4%) of said free-space wavelength of the directional antenna array.

30. (original) The directional antenna array of claim 21, further comprising a second parasitic element that is separated from said driven element, wherein said at least one of said first parasitic element, said driven element and said second parasitic element has said width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array.

31. (previously amended) The directional antenna array of claim 30, further comprising a plurality of parasitic elements in addition to said first parasitic element and said second parasitic element.

32. (previously amended) The directional antenna array of claim 30, wherein said first parasitic element and said second parasitic element are at least substantially in-plane elements.

33. (original) The directional antenna array of claim 21, wherein said first parasitic element is a reflector element.

34. (previously amended) The directional antenna array of claim 30, wherein said second parasitic element is a director element.

Appl. No. 10/661,652

Reply to Office action of Nov. 9, 2005

Docket. No.: 022.0008 (1630)

35. (previously amended) The directional antenna array of claim 30, wherein said driven element, said first parasitic element, said second parasitic element and said balun structure are formed of a monolithic material.

36. (original) The directional antenna array of claim 21, wherein said monolithic material has a resistivity that is greater than about  $0.2 \times 10^{-6}$  ohms-meter.

37. (original) The directional antenna array of claim 21, wherein said monolithic material is spring steel.

38. (original) The directional antenna array of claim 21, further comprising a plurality of apertures in said driven element and said first parasitic element.

39. (original) The directional antenna array of claim 21, further comprising a material covering at least a portion of said driven element and said first parasitic element.

40. (original) The directional antenna array of claim 21, wherein said material covering at least said portion of said driven element and said first parasitic element is an elastomer.

41. (currently amended) A portable/handheld device, comprising:

a processing module configured to operate as a handheld, portable RFID interrogator;  
and

a directional antenna array coupled to said processing module, said directional antenna array comprising:

a driven element; and

a first parasitic element spaced apart from said driven element, wherein at least one of said first parasitic element and said driven element have a width that is greater than about one-half a percent (0.5%) of a free-space wavelength of the directional antenna array.

Appl. No. 10/661,652

Reply to Office action of Nov. 9, 2005

Docket. No.: 022.0008 (1630)

42. (cancelled).

43. (previously amended) A portable/handheld device, comprising:

a processing module; and

a directional antenna array coupled to said processing module, said directional antenna array comprising:

a first parasitic element;

a driven element spaced apart from said first parasitic element; and

a balun structure configured to couple said driven element to at least one of an electromagnetic energy source and an electromagnetic sink, said balun structure comprising:

a dipole structure;

a first feed point extending from said dipole structure, and

a second feed point extending from said first parasitic element.

44. (original) The portable/handheld device of claim 43, wherein said portable/handheld device is an RFID interrogator.